

# CLAIMS

1-38 (Cancelled)

- 5 39. (Currently amended) Apparatus for blood glucose control, comprising:  
at least one electrode adapted to apply an electric field to a pancreas; and  
circuitry adapted to electrify said at least one electrode and configured to electrify said  
electrode with a non-excitatory field in a manner which compensates for a loss of acute  
response by said pancreas;
- 10 wherein for at least 20% of ingestion events said circuitry applies only an acute control of  
insulin levels.
40. (Original) Apparatus according to claim 39, wherein said circuitry compensates by  
causing the secretion of an insulin bolus.
- 15 41. (Original) Apparatus according to claim 39, wherein said circuitry compensates by  
reducing glucose levels in a non-insulin manner.
42. (Original) Apparatus according to claim 41, wherein said circuitry compensates by  
20 reducing glucagon secretion.
43. (Original) Apparatus according to claim 39, wherein said circuitry reduces or prevents  
a substantial increase in insulin secretion during said compensation.
- 25 44. (Cancelled)
45. (Currently Amended) Apparatus according to ~~claim 44~~, claim 39, wherein said  
apparatus is programmed with a knowledge of a slow acting chemical-based insulin therapy  
provided to said pancreas.
- 30 46. (Currently Amended) ~~Apparatus according to claim 39;~~ Apparatus for blood glucose  
control, comprising:  
\_\_\_\_\_ at least one electrode adapted to apply an electric field to a pancreas; and

circuitry adapted to electrify said at least one electrode and configured to electrify said electrode with a non-excitatory field in a manner which compensates for a loss of acute response by said pancreas;

comprising an automatic ingestion sensor for automatically detecting an ingestion event.

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47. (Original) Apparatus according to claim 39, comprising an automatic glucose sensor for automatically detecting a situation requiring an acute response.

48. (Original) Apparatus according to claim 39, comprising an automatic glucose sensor  
10 for automatically detecting a situation requiring an acute insulin response.

49. (Original) Apparatus according to claim 39, wherein said response is an acute insulin response.

15 50. (Original) Apparatus according to claim 39, wherein said electrode is adapted for attachment to a pancreas.

51. (Original) Apparatus according to claim 39, wherein said electrode is adapted for attachment to a muscular organ.

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52. (Original) Apparatus for blood glucose control, comprising:

at least one electrode adapted to apply an electric field to a pancreas; and

circuitry adapted to electrify said at least one electrode and configured to electrify said electrode in a manner which significantly reduces elevated blood glucose levels, said circuitry  
25 configured to apply said field also when glucose levels are not elevated.

53. (Original) Apparatus according to claim 52, wherein said circuitry is a closed loop system including sensing of the effect of the electrification and wherein said circuitry is configured to over stimulate in cases of doubt.

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54. (Original) Apparatus according to claim 52, wherein said circuitry is a semi-open loop system where a relatively long stimulation series is applied without feedback.

55. (Original) Apparatus according to claim 52, wherein said circuitry is an open loop system where a stimulation series is applied responsive to a trigger and without feedback.
56. (Currently amended) Apparatus for blood glucose control, comprising:  
5 at least one electrode adapted to apply an electric field to pancreatic tissue; and  
circuitry adapted to electrify said at least one electrode and configured to electrify said electrode in a manner which reduces glucose levels and does not substantially elevate insulin levels above a baseline value, when glucose levels are elevated.
- 10 57. (Original) Apparatus according to claim 56, wherein said circuitry is a closed loop system including sensing of the effect of the electrification and wherein said circuitry is configured to over stimulate in cases of doubt.
58. (Original) Apparatus according to claim 56, wherein said circuitry is a semi-open loop  
15 system where a relatively long stimulation series is applied without feedback.
59. (Original) Apparatus according to claim 56, wherein said circuitry is an open loop system where a stimulation series is applied responsive to a trigger and without feedback.
- 20 60. (Original) Apparatus according to claim 56, wherein said circuitry applies a constant voltage field.
61. (Original) Apparatus according to claim 56, wherein said circuitry applies a constant current field.  
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62. (Original) Apparatus according to claim 56, wherein said pancreatic tissue comprises an in-vivo pancreas.
63. (Original) Apparatus according to claim 56, wherein said pancreatic tissue comprises a  
30 pancreatic tissue implant.
64. (Original) Apparatus according to claim 56, wherein said baseline is a baseline insulin response of a person for which the apparatus is used.

65-67. (Cancelled)

68. (New) Apparatus according to claim 46, wherein said circuitry compensates by causing  
5 the secretion of an insulin bolus.

69. (New) Apparatus according to claim 46, wherein said circuitry compensates by  
reducing glucose levels in a non-insulin manner.

10 70. (New) Apparatus according to claim 46, wherein said circuitry compensates by  
reducing glucagon secretion.

71. (New) Apparatus according to claim 46, wherein said circuitry reduces or prevents a  
substantial increase in insulin secretion during said compensation.

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72. (New) Apparatus according to claim 46, wherein said apparatus is programmed with a  
knowledge of a slow acting chemical-based insulin therapy provided to said pancreas.

73. (New) Apparatus according to claim 46, comprising an automatic glucose sensor for  
20 automatically detecting a situation requiring an acute response.

74. (New) Apparatus according to claim 46, comprising an automatic glucose sensor for  
automatically detecting a situation requiring an acute insulin response.

25 75. (New) Apparatus according to claim 46, wherein said response is an acute insulin  
response.

76. (New) Apparatus according to claim 46, wherein said electrode is adapted for  
attachment to a pancreas.

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77. (New) Apparatus according to claim 46, wherein said electrode is adapted for  
attachment to a muscular organ.

78. (New) Apparatus according to claim 52, wherein said circuitry compensates by causing the secretion of an insulin bolus.
79. (New) Apparatus according to claim 52, wherein said circuitry compensates by  
5 reducing glucose levels in a non-insulin manner.
80. (New) Apparatus according to claim 52, wherein said circuitry compensates by reducing glucagon secretion.
- 10 81. (New) Apparatus according to claim 52, wherein said circuitry reduces or prevents a substantial increase in insulin secretion during said compensation.
82. (New) Apparatus according to claim 52, wherein said apparatus is programmed with a knowledge of a slow acting chemical-based insulin therapy provided to said pancreas.
- 15 83. (New) Apparatus according to claim 52, comprising an automatic glucose sensor for automatically detecting a situation requiring an acute response.
84. (New) Apparatus according to claim 52, comprising an automatic glucose sensor for  
20 automatically detecting a situation requiring an acute insulin response.
85. (New) Apparatus according to claim 52, wherein said response is an acute insulin response.
- 25 86. (New) Apparatus according to claim 52, wherein said electrode is adapted for attachment to a pancreas.
87. (New) Apparatus according to claim 52, wherein said electrode is adapted for attachment to a muscular organ.
- 30 88. (New) Apparatus according to claim 56, wherein said circuitry compensates by causing the secretion of an insulin bolus.

89. (New) Apparatus according to claim 56, wherein said circuitry compensates by reducing glucose levels in a non-insulin manner.
90. (New) Apparatus according to claim 56, wherein said circuitry compensates by  
5 reducing glucagon secretion.
91. (New) Apparatus according to claim 56, wherein said circuitry reduces or prevents a substantial increase in insulin secretion during said compensation.
- 10 92. (New) Apparatus according to claim 56, wherein said apparatus is programmed with a knowledge of a slow acting chemical-based insulin therapy provided to said pancreas.
93. (New) Apparatus according to claim 56, comprising an automatic glucose sensor for automatically detecting a situation requiring an acute response.
- 15 94. (New) Apparatus according to claim 56, comprising an automatic glucose sensor for automatically detecting a situation requiring an acute insulin response.
95. (New) Apparatus according to claim 56, adapted to provide an acute insulin response.
- 20 96. (New) Apparatus according to claim 56, wherein said electrode is adapted for attachment to a pancreas.
97. (New) Apparatus according to claim 56, wherein said electrode is adapted for  
25 attachment to a muscular organ.
98. (New) Apparatus according to claim 39, wherein said electrode is adapted for attachment to a stomach.
- 30 99. (New) Apparatus according to claim 46, wherein said electrode is adapted for attachment to a stomach.

100. (New) Apparatus according to claim 56, wherein said electrode is adapted for attachment to a stomach.